

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

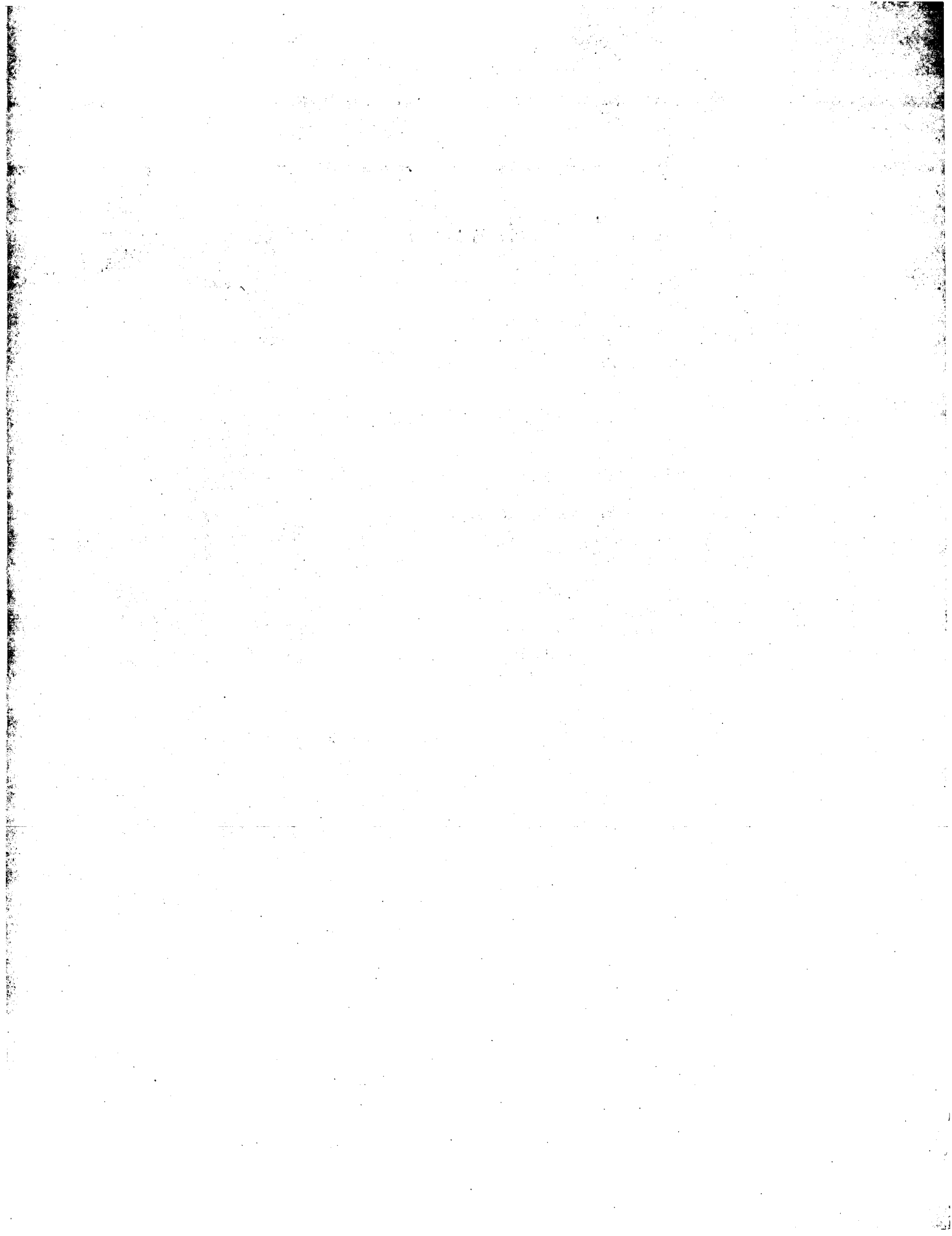
Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**



GenCore version 5.1.6  
Copyright (c) 1993 - 2003 Compugen Ltd.

# OM protein - protein search, using sw model

Run on: June 18, 2003, 03:16:37 ; Search time 42.4159 Seconds  
(without alignments)  
1215.770 Million cell updates/sec

Title: US-09-807-933B-9

Sequence: 1 MKRTVAITSLAVALALSSA.....TFKEVTCPEALTRSGCERK 387

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

## Database :

```

1: /SID2/gcgdata/geneseq/geneseq-emb1/AA1980.DAT.*
2: /SID2/gcgdata/geneseq/geneseq-emb1/AA1981.DAT.*
3: /SID2/gcgdata/geneseq/geneseq-emb1/AA1982.DAT.*
4: /SID2/gcgdata/geneseq/geneseq-emb1/AA1983.DAT.*
5: /SID2/gcgdata/geneseq/geneseq-emb1/AA1985.DAT.*
6: /SID2/gcgdata/geneseq/geneseq-emb1/AA1986.DAT.*
7: /SID2/gcgdata/geneseq/geneseq-emb1/AA1987.DAT.*
8: /SID2/gcgdata/geneseq/geneseq-emb1/AA1987.DAT.*
9: /SID2/gcgdata/geneseq/geneseq-emb1/AA1988.DAT.*
10: /SID2/gcgdata/geneseq/geneseq-emb1/AA1989.DAT.*
11: /SID2/gcgdata/geneseq/geneseq-emb1/AA1990.DAT.*
12: /SID2/gcgdata/geneseq/geneseq-emb1/AA1991.DAT.*
13: /SID2/gcgdata/geneseq/geneseq-emb1/AA1992.DAT.*
14: /SID2/gcgdata/geneseq/geneseq-emb1/AA1993.DAT.*
15: /SID2/gcgdata/geneseq/geneseq-emb1/AA1994.DAT.*
16: /SID2/gcgdata/geneseq/geneseq-emb1/AA1995.DAT.*
17: /SID2/gcgdata/geneseq/geneseq-emb1/AA1996.DAT.*
18: /SID2/gcgdata/geneseq/geneseq-emb1/AA1997.DAT.*
19: /SID2/gcgdata/geneseq/geneseq-emb1/AA1998.DAT.*
20: /SID2/gcgdata/geneseq/geneseq-emb1/AA1999.DAT.*
21: /SID2/gcgdata/geneseq/geneseq-emb1/AA2000.DAT.*
22: /SID2/gcgdata/geneseq/geneseq-emb1/AA2001.DAT.*
23: /SID2/gcgdata/geneseq/geneseq-emb1/AA2002.DAT.*

```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

| Result No. | Score  | Query Match | Length | DB ID | Description |
|------------|--------|-------------|--------|-------|-------------|
| 1          | 2106   | 100.0       | 387    | 21    | AA09825     |
| 2          | 2106   | 100.0       | 387    | 21    | AA015056    |
| 3          | 2106   | 100.0       | 387    | 23    | AA08064     |
| 4          | 1791.5 | 85.1        | 338    | 21    | AA09824     |
| 5          | 1791.5 | 85.1        | 338    | 23    | AA015055    |
| 6          | 1791.5 | 85.1        | 338    | 23    | AA08063     |
| 7          | 1363.5 | 64.7        | 366    | 21    | AA09822     |
| 8          | 1363.5 | 64.7        | 366    | 23    | AA015053    |
| 9          | 1363.5 | 64.7        | 366    | 23    | AA08061     |
| 10         | 1222.5 | 58.0        | 338    | 21    | AA09821     |

|    |        |      |     |    |          |
|----|--------|------|-----|----|----------|
| 11 | 1222.5 | 58.0 | 338 | 23 | AA015052 |
| 12 | 1222.5 | 58.0 | 338 | 21 | AA08060  |
| 13 | 1195.5 | 56.8 | 360 | 23 | AA09823  |
| 14 | 1195.5 | 56.8 | 360 | 23 | AA015054 |
| 15 | 1195.5 | 56.8 | 360 | 23 | AA08062  |
| 16 | 1170.5 | 55.6 | 346 | 21 | AA09826  |
| 17 | 1170.5 | 55.6 | 346 | 23 | AA015057 |
| 18 | 1170.5 | 55.6 | 346 | 23 | AA08065  |
| 19 | 966.5  | 45.9 | 245 | 23 | AA015063 |
| 20 | 946    | 44.9 | 228 | 23 | AA015062 |
| 21 | 769.5  | 36.5 | 259 | 17 | AA04928  |
| 22 | 769.5  | 36.5 | 239 | 19 | AA063624 |
| 23 | 768.5  | 36.5 | 306 | 19 | AA044270 |
| 24 | 767.5  | 36.4 | 225 | 21 | AA04798  |
| 25 | 767.5  | 36.4 | 225 | 22 | AA05057  |
| 26 | 762.5  | 36.2 | 200 | 19 | AA053979 |
| 27 | 761.5  | 36.2 | 225 | 17 | AA04925  |
| 28 | 761.5  | 36.2 | 297 | 17 | AA04933  |
| 29 | 761.5  | 36.2 | 308 | 17 | AA04934  |
| 30 | 760.5  | 36.1 | 200 | 19 | AA053967 |
| 31 | 754.5  | 35.8 | 200 | 19 | AA053968 |
| 32 | 753.5  | 35.8 | 204 | 19 | AA053970 |
| 33 | 740    | 35.1 | 223 | 23 | AA015070 |
| 34 | 740    | 35.1 | 223 | 23 | AA080602 |
| 35 | 735    | 34.9 | 349 | 17 | AA04927  |
| 36 | 729.5  | 34.6 | 306 | 19 | AA044269 |
| 37 | 727.5  | 34.5 | 304 | 19 | AA044272 |
| 38 | 725    | 34.4 | 307 | 19 | AA044273 |
| 39 | 722.5  | 34.3 | 202 | 19 | AA053972 |
| 40 | 722.5  | 34.3 | 222 | 17 | AA04929  |
| 41 | 722.5  | 34.3 | 294 | 17 | AA04937  |
| 42 | 718    | 34.1 | 305 | 19 | AA044854 |
| 43 | 718    | 34.1 | 305 | 19 | AA041929 |
| 44 | 717    | 34.0 | 234 | 19 | AA046618 |
| 45 | 717    | 34.0 | 286 | 19 | AA057420 |

## ALIGNMENTS

```

RESULT 1
AAB09825
ID AAB09825 standard; Protein; 387 AA.
AC AAB09825;
DT 25-SEP-2000 (first entry)
XX Endoglucanase protein sequence 5.
DE Endoglucanase; cellulose breakdown; produce pulp; papermaking;
KW Endoglucanase; animal foodstuffs.
KW animal foodstuffs.
XX Phycomyces nitens.
OS Phycomyces nitens.
PN WO200024879-A1.
PD 04-MAY-2000.
XX 25-OCT-1999; 99WO-JP05884.
PF 25-OCT-1999; 99WO-JP05884.
XX 23-OCT-1998; 98JP-0302387.
PR (MEIJ) MEIJ SEIKA KAISHA LTD.
PA (MEIJ) MEIJ SEIKA KAISHA LTD.
XX Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
XX WPT: 2000-365117/31.
DR N-PSDB; AA062730.
PT Endoglucanases of fungal origin with high activity under alkaline
conditions for production of paper pulp and animal feedstuffs

```

XX Claim 44; Page 125-127; 180pp; Japanese.

XX This sequence represents an endoglucanase protein. The invention relates  
 CC to an endoglucanase of fungal origin which can completely break down  
 CC purified cellulose at a concentration of less than 1mg protein/litre,  
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The  
 CC invention includes endoglucanase protein sequences (see  
 CC AAB09825-B09830), endoglucanase nucleotide sequences (see  
 CC AAB62726-A62732) and primers (AAB62731-A62802) which are used in the  
 CC identification of the endoglucanase sequences, and in the construction of  
 CC vectors containing the polynucleotides. The endoglucanase enzymes are  
 CC used for the production of pulp for papermaking and for the production of  
 CC animal foodstuffs.

XX Sequence 387 AA;

Query Match 100.0%; Score 2106; DB 21; Length 387;  
 Best Local Similarity 100.0%; Pred. No. 6.9e-140;  
 Matches 387; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFTVAITSIIVAVLALSSSAEASCSVYGGCGGIGMTGPTCCDAGSTCKAOKNKYYSQ 60  
 DB 1 MKFTVAITSIIVAVLALSSSAEASCSVYGGCGGIGMTGPTCCDAGSTCKAOKNKYYSQ 60  
 QY 61 CIPKPKGSSSSSSCSVYSGCGGIGMSGPTCCESGSTCVAOEGNKYYSQCLPGSHNNAG 120  
 DB 61 CIPKPKGSSSSSSCSVYSGCGGIGMSGPTCCESGSTCVAOEGNKYYSQCLPGSHNNAG 120  
 QY 121 NASSSTKSTSTKTSTTAKATATVTTKVTTKTTTSTTAASTSTSSAGKYVSG 180  
 DB 121 NASSSTKSTSTKTSTTAKATATVTTKVTTKTTTSTTAASTSTSSAGKYVSG 180  
 QY 181 GKSGSGSTRRWDCCKASCSMPGKASVTPGVDTCASNGISLLDANAOSGCNGGPMCMN 240  
 DB 181 GKSGSGSTRRWDCCKASCSMPGKASVTPGVDTCASNGISLLDANAOSGCNGGPMCMN 240  
 QY 241 NOPMAVNDLAVGFAAASINAGNAGMCCGCELTFTSGAASGKMMVQVNTNGDLGSLN 300  
 DB 241 NOPMAVNDLAVGFAAASINAGNAGMCCGCELTFTSGAASGKMMVQVNTNGDLGSLN 300  
 QY 301 HFDLQMPGGGVGIFNGCAOMGAPNDGMAFYGVSSVSDCASLPSALQAGCKMRFNMF 360  
 DB 301 HFDLQMPGGGVGIFNGCAOMGAPNDGMAFYGVSSVSDCASLPSALQAGCKMRFNMF 360  
 QY 361 NSDNPMTFKEVTCPAELTTRSGCERK 387  
 DB 361 NSDNPMTFKEVTCPAELTTRSGCERK 387

RESULT 2

AA015056 standard; Protein; 387 AA.

AA015056;

22-AUG-2002 (first entry)

Rhizopus arrhizus endoglucanase-related protein 5.

Zygomycetes-originated endoglucanase; cellulose binding domain;

fibres processing; waste paper de-inking; paper pulp.

Mucor circinelloides.

WO200242474-A1.

30-MAY-2002.

21-NOV-2001; 2001WO-JP10188.

21-NOV-2000; 2000JP-0354296.

XX

PA (MEIJU) MEIJU SEIKA KAISHA LTD.

XX Nakane A, Baba Y, Koga J, Kubota H;

DR MPI; 2002-471729/50.

DR N-ESDB; AAL43248.

PT Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,  
 CC with effect of endoglucanase activity enhanced in processing fibers,  
 CC deinking waste paper and improving freeness of paper pulp

PS Claim 5; Page 73-75; 109pp; Japanese.

XX The invention comprises the amino acid and coding sequences of  
 CC zygomyces-originated endoglucanase enzymes lacking the cellulose  
 CC binding domain. The zygomyces-originated endoglucanase enzymes of the  
 CC invention have enhanced endoglucanase activity. The zygomyces-  
 CC originated endoglucanase enzymes of the invention are useful for  
 CC processing fibres, de-inking waste paper and improving the freeness of  
 CC paper pulp - which is particularly applicable in detergent compositions.  
 CC The present amino acid sequence represents an endoglucanase-related  
 CC protein of the invention.

XX Sequence 387 AA;

Query Match 100.0%; Score 2106; DB 23; Length 387;  
 Best Local Similarity 100.0%; Pred. No. 6.9e-140;  
 Matches 387; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFTVAITSIIVAVLALSSSAEASCSVYGGCGGIGMTGPTCCDAGSTCKAOKNKYYSQ 60  
 DB 1 MKFTVAITSIIVAVLALSSSAEASCSVYGGCGGIGMTGPTCCDAGSTCKAOKNKYYSQ 60  
 QY 61 CIPKPKGSSSSSSCSVYSGCGGIGMSGPTCCESGSTCVAOEGNKYYSQCLPGSHNNAG 120  
 DB 61 CIPKPKGSSSSSSCSVYSGCGGIGMSGPTCCESGSTCVAOEGNKYYSQCLPGSHNNAG 120  
 QY 121 NASSSTKSTSTKTSTTAKATATVTTKVTTKTTTSTTAASTSTSSAGKYVSG 180  
 DB 121 NASSSTKSTSTKTSTTAKATATVTTKVTTKTTTSTTAASTSTSSAGKYVSG 180  
 QY 181 GKSGSGSTRRWDCCKASCSMPGKASVTPGVDTCASNGISLLDANAOSGCNGGPMCMN 240  
 DB 181 GKSGSGSTRRWDCCKASCSMPGKASVTPGVDTCASNGISLLDANAOSGCNGGPMCMN 240  
 QY 241 NOPMAVNDLAVGFAAASINAGNAGMCCGCELTFTSGAASGKMMVQVNTNGDLGSLN 300  
 DB 241 NOPMAVNDLAVGFAAASINAGNAGMCCGCELTFTSGAASGKMMVQVNTNGDLGSLN 300  
 QY 301 HFDLQMPGGGVGIFNGCAOMGAPNDGMAFYGVSSVSDCASLPSALQAGCKMRFNMF 360  
 DB 301 HFDLQMPGGGVGIFNGCAOMGAPNDGMAFYGVSSVSDCASLPSALQAGCKMRFNMF 360  
 QY 361 NSDNPMTFKEVTCPAELTTRSGCERK 387  
 DB 361 NSDNPMTFKEVTCPAELTTRSGCERK 387

RESULT 3

ABB08064 standard; Protein; 387 AA.

ABB08064;

27-AUG-2002 (first entry)

M. circinelloides CP99001 MCEII protein.

Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;

pulp treatment; MCEII.

Mucor circinelloides.

XX

FH Key Location/Qualifiers  
 FT Peptide 1..22  
 FT /note= "signal peptide"  
 FT Protein 23..387  
 FT /note= "mature protein"  
 PN WO200238754-A1.  
 PD 16-MAY-2002.  
 PD 12-NOV-2001; 2001WO-JP09858.  
 PR 10-NOV-2000; 2000JP-0343921.  
 PA (MEIJ ) MEIJI SEIKA KAISHA LTD.  
 PI Koga J, Nakane A, Baba Y, Kono T;  
 PI WPI: 2002-471555/50.  
 DR WPI: 2002-471555/50.  
 XX Cellulase preparations containing transconjugant-originated  
 PT endoglucanase and non-ionic surfactants, useful in detergent  
 PT compositions, in treating cellulose fibers and deinking waste paper and  
 PT improving freeness of paper pulp -  
 PS Claim 3; Page 29-31; 38pp; Japanese.  
 XX The invention relates to a cellulase preparation comprising a  
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The  
 CC endoglucanase is selected from RCEI, RCEII, MCEI, MCEII or PCEI  
 CC proteins. The preparations are useful in detergent compositions, in  
 CC treating cellulose fibers and deinking waste paper and improving the  
 CC freeness of paper pulp. The fibers treated by the preparations have  
 CC reduced feathering and improved skin-feel and appearance with colour  
 CC clarification, local change in colour and softening, and after deinking  
 CC and paper pulp treatment, there is an improvement on freeness of the  
 CC paper pulp. This treatment with the cellulase preparation can be operated  
 CC at significantly lower cost. The present sequence represents the  
 CC M. circinnelloides CP99001 MCEII protein.  
 XX  
 SQ Sequence 387 AA;  
 Query Match 100.0%; Score 2106; DB 23; Length 387;  
 Best Local Similarity 100.0%; Pred. No. 6,9e-140;  
 Matches 387; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 MKFTVAITSIIVALLSSSAEASCSYVGGCGIGMTGPTCCDAGSTCKAKDKNKYYSQ 60  
 DB 1 MKFTVAITSIIVALLSSSAEASCSYVGGCGIGMTGPTCCDAGSTCKAKDKNKYYSQ 60  
 QY 61 CIPRKSSSSSSSCSVSYGCGIGMSGPTCCESGSTCVAQEGNKYYSQLPGSHSNAG 120  
 DB 61 CIPRKSSSSSSSCSVSYGCGIGMSGPTCCESGSTCVAQEGNKYYSQLPGSHSNAG 120  
 QY 121 NASTKTKSTSTSTTAKATATVTTKVTYKTTTSTTAAASTSTSSAGKYVIG 180  
 DB 121 NASTKTKSTSTSTTAKATATVTTKVTYKTTTSTTAAASTSTSSAGKYVIG 180  
 QY 121 NASTKTKSTSTSTTAKATATVTTKVTYKTTTSTTAAASTSTSSAGKYVIG 180  
 DB 121 NASTKTKSTSTSTTAKATATVTTKVTYKTTTSTTAAASTSTSSAGKYVIG 180  
 QY 181 GKSAGSSTRYWDCCKASCWPGKASVTPVDTCASNGISILLDANAQSGCNGNFMGN 240  
 DB 181 GKSAGSSTRYWDCCKASCWPGKASVTPVDTCASNGISILLDANAQSGCNGNFMGN 240  
 QY 181 GKSAGSSTRYWDCCKASCWPGKASVTPVDTCASNGISILLDANAQSGCNGNFMGN 240  
 DB 181 GKSAGSSTRYWDCCKASCWPGKASVTPVDTCASNGISILLDANAQSGCNGNFMGN 240  
 QY 241 NOPAVANDELAIFGFAASIASNEAGMCCGCELTFTTGAASGKMMVVQVNTGDLGN 300  
 DB 241 NOPAVANDELAIFGFAASIASNEAGMCCGCELTFTTGAASGKMMVVQVNTGDLGN 300  
 QY 301 HFDLOMFGGIVGIFGCAAGMGPADGAGRYGVSVDCAISLALQAGKMFNFX 360  
 DB 301 HFDLOMFGGIVGIFGCAAGMGPADGAGRYGVSVDCAISLALQAGKMFNFX 360  
 QY 361 NSDNTMTFKEVTCPAELTTRSGCERK 387  
 DB 361 NSDNTMTFKEVTCPAELTTRSGCERK 387

RESULT 4  
 ID AAB09824  
 ID AAB09824 standard; Protein; 338 AA.  
 AC AAB09824;  
 XX 25-SEP-2000 (first entry)  
 DT 25-SEP-2000 (first entry)  
 DE Endoglucanase protein sequence 4.  
 XX Endoglucanase; cellulose breakdown; produce pulp; papermaking;  
 KW animal foodstuff.  
 XX Mucor circinnelloides.  
 OS Mucor circinnelloides.  
 PN WO200024879-A1.  
 PD 04-MAY-2000.  
 PD 25-OCT-1999; 99WO-JP05884.  
 PR 23-OCT-1998; 98JP-0302387.  
 PA (MEIJ ) MEIJI SEIKA KAISHA LTD.  
 PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;  
 PI Muraishi K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;  
 PI WPI: 2000-365117/31.  
 DR N-PSDB; AAA62729.  
 DR Endoglucanases of fungal origin with high activity under alkaline  
 PT conditions for production of paper pulp and animal feedstuffs -  
 PT Endoglucanases of fungal origin with high activity under alkaline  
 PT conditions for production of paper pulp and animal feedstuffs -  
 PS Claim 44; Page 120-122; 180pp; Japanese.  
 XX This sequence represents an endoglucanase protein. The invention relates  
 CC to an endoglucanase of fungal origin which can completely break down  
 CC purified cellulose at a concentration of less than 1mg protein/litre,  
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The  
 CC invention includes endoglucanase protein sequences (see  
 CC AAB09825-809830), endoglucanase nucleotide sequences (see  
 CC AAA62726-862732), and primers (AAA62733-862802) which are used in the  
 CC identification of the endoglucanase sequences, and in the construction of  
 CC vectors containing the polynucleotides. The endoglucanase enzymes are  
 CC used for the production of pulp for papermaking and for the production of  
 CC animal foodstuffs.  
 XX  
 SQ Sequence 338 AA;  
 Query Match 85.1%; Score 1791.5; DB 21; Length 338;  
 Best Local Similarity 87.3%; Pred. No. 6,8e-118;  
 Matches 338; Conservative 0; Mismatches 0; Indels 49; Gaps 1;  
 QY 1 MKFTVAITSIIVALLSSSAEASCSYVGGCGIGMTGPTCCDAGSTCKAKDKNKYYSQ 60  
 DB 1 MKFTVAITSIIVALLSSSAEASCSYVGGCGIGMTGPTCCDAGSTCKAKDKNKYYSQ 60  
 QY 61 CIPRKSSSSSSSCSVSYGCGIGMSGPTCCESGSTCVAQEGNKYYSQLPGSHSNAG 120  
 DB 61 CIPRKSSSSSSSCSVSYGCGIGMSGPTCCESGSTCVAQEGNKYYSQLPGSHSNAG 120  
 QY 31 -----CCGIGMSGPTCCESGSTCVAQEGNKYYSQLPGSHSNAG 71  
 DB 31 -----CCGIGMSGPTCCESGSTCVAQEGNKYYSQLPGSHSNAG 71  
 QY 121 NASTKTKSTSTTAKATATVTTKVTYKTTTSTTAAASTSTSSAGKYVIG 180  
 DB 121 NASTKTKSTSTTAKATATVTTKVTYKTTTSTTAAASTSTSSAGKYVIG 180  
 QY 72 NASTKTKSTSTTAKATATVTTKVTYKTTTSTTAAASTSTSSAGKYVIG 131  
 DB 72 NASTKTKSTSTTAKATATVTTKVTYKTTTSTTAAASTSTSSAGKYVIG 131  
 QY 181 GKSAGSSTRYWDCCKASCWPGKASVTPVDTCASNGISILLDANAQSGCNGNFMGN 240  
 DB 181 GKSAGSSTRYWDCCKASCWPGKASVTPVDTCASNGISILLDANAQSGCNGNFMGN 240  
 QY 132 GKSAGSSTRYWDCCKASCWPGKASVTPVDTCASNGISILLDANAQSGCNGNFMGN 191  
 DB 132 GKSAGSSTRYWDCCKASCWPGKASVTPVDTCASNGISILLDANAQSGCNGNFMGN 191  
 QY 241 NOPAVANDELAIFGFAASIASNEAGMCCGCELTFTTGAASGKMMVVQVNTGDLGN 300  
 DB 241 NOPAVANDELAIFGFAASIASNEAGMCCGCELTFTTGAASGKMMVVQVNTGDLGN 300



CC M. circinnelloides CP99001 MCEI protein.  
XX  
SQ Sequence 338 AA;  
Query Match 85.1%; Score 1791.5; DB 23; Length 338;  
Best Local Similarity 87.3%; Pred. No. 6.8e-118;  
Matches 338; Conservative 0; Mismatches 0; Indels 49; Gaps 1;  
OY 1 MKPTVAITSIATVALALSSAASCSVYQCGGIGMTGPTCCDAGSTCKAKQKXKYYSQ 60  
DB 1 MKPTVAITSIATVALALSSAASCSVYQ----- 30  
OY 61 CIPKPGSSSSSSCSVYQCGGIGMSGPTCCESGSTCVAGBNKYYSOCLPGSHNNAG 120  
DB 31 -----QCGGIGMSGPTCCESGSTCVAGBNKYYSOCLPGSHNNAG 71  
OY 121 NASTKKTSTKTSTTTAKATATVTTKVTCTTTTCTTTTAAASTSTSSAGYKVI 180  
DB 72 NASTKKTSTKTSTTTAKATATVTTKVTCTTTTCTTTTAAASTSTSSAGYKVI 131  
OY 181 GKSSGSGTTRVYDCCCKASCSWPKASVTPDTCASNGISLLDANAQSGCNGGFMCMN 240  
DB 132 GKSSGSGTTRVYDCCCKASCSWPKASVTPDTCASNGISLLDANAQSGCNGGFMCMN 191  
OY 241 NQPAVAVDELAYGFAAASIAGSNEAGMCCGCELTFTSGAAGKMMVQVNTTGGDLGSN 300  
DB 192 NQPAVAVDELAYGFAAASIAGSNEAGMCCGCELTFTSGAAGKMMVQVNTTGGDLGSN 251  
OY 301 HFDIOMPGGAGVIFNGCAOMGAPNDGAGARYGVSSVSDCASLPSALQACCKRPFMFK 360  
DB 252 HFDIOMPGGAGVIFNGCAOMGAPNDGAGARYGVSSVSDCASLPSALQACCKRPFMFK 311  
OY 361 NSDNPMTPEKVTCPAELTTRSGCERK 387  
DB 312 NSDNPMTPEKVTCPAELTTRSGCERK 338

RESULT 7  
AAB09822  
ID AAB09822 standard; Protein: 366 AA.  
XX  
AC AAB09822;  
XX  
DT 25-SEP-2000 (first entry)  
XX  
DE Endoglucanase protein sequence 2.  
XX  
KM Endoglucanase; cellulose breakdown; produce pulp; papermaking;  
XX  
OS animal foodstuff.  
XX  
OS Rhizopus oryzae.  
XX  
PN WO200024879-A1.  
XX  
PD 04-MAY-2000.  
XX  
PF 25-OCT-1999; 69WO-JP05884.  
XX  
PR 23-OCT-1998; 98JP-0302387.  
XX  
PA (MEIJ ) MEIJ SEIKA KAISHA LTD.  
XX  
PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;  
XX  
PI Muraahima K, Nakane A, Yaguchi T, Koga J, Muraahima T, Kono T;  
XX  
DR WPI: 2000-365117/31.  
XX  
DR N-PSDB: AAA62727.  
XX  
PT Endoglucanases of fungal origin with high activity under alkaline  
XX  
PS conditions for production of paper pulp and animal feedstuffs  
XX  
PS Claim 44; Page 110-113; 180pp; Japanese.

CC This sequence represents an endoglucanase protein. The invention relates  
CC to an endoglucanase of fungal origin which can completely break down  
CC purified cellulose at a concentration of less than 1mg protein/litre,  
CC and produces more than 50% breakdown of cellulose at pH 8.5. The  
CC invention includes endoglucanase protein sequences (see  
CC AAB09825-B09830), endoglucanase nucleotide sequences (see  
CC AAB62726-A62732) and primers (AAB62733-A62802) which are used in the  
CC identification of the endoglucanase sequences, and in the construction of  
CC vectors containing the polynucleotides. The endoglucanase enzymes are  
CC used for the production of pulp for papermaking and for the production of  
CC animal foodstuffs.  
XX  
SQ Sequence 366 AA;  
Query Match 64.7%; Score 1363.5; DB 21; Length 366;  
Best Local Similarity 62.6%; Pred. No. 7.9e-88;  
Matches 246; Conservative 49; Mismatches 65; Indels 33; Gaps 9;  
OY 1 MKPTVAITSIATVALALSSAASCSVYQCGGIGMTGPTCCDAGSTCKAKQKXKYY 59  
DB 1 MKPTTSSALIALALCTEMASAKSKLYGCGGKXDMNGPTCCESGSTCKVSN 58  
OY 60 QCIKPGSSSSSSCSVYQCGGIGMSGPTCCESGSTCVAGBNKYYSOCLPGSHNN 118  
DB 59 QCLAPESNGMKSSECSKLYGCGGKXDMNGPTCCESGSTC--KXNDYSOCLAPES--- 112  
OY 119 AGNASTKTSTKTSTTTAKATATVTTKVTCTTTTCTTTTAAASTSTSSAGYKVI 178  
DB 113 --NGNKTSESHKTTTTTAP-----KEIT-----TTAKASNSNSGKTSIV 153  
OY 179 SGKSGSGTTRVYDCCCKASCSWPKASVTPDTCASNGISLLDANAQSGCNGGFM 237  
DB 154 SGKSGSGTTRVYDCCCKASCSWPKASVTPDTCASNGISLLDANAQSGCNGGFM 213  
OY 238 CNNOQPAVAVDELAYGFAAASIAGSNEAGMCCGCELTFTSGAAGKMMVQVNTTGGDL 297  
DB 214 CNNOQPAVAVDELAYGFAAASIAGSNEAGMCCGCELTFTSTVAAGKMMVQVNTTGGDL 273  
OY 298 GSN---HFDIOMPGGAGVIFNGCAOMGAPNDGAGARYGVSSVSDCASLPSALQACCK 354  
DB 274 GSN---HFDIOMPGGAGVIFNGCAOMGAPNDGAGARYGVSSVSDCASLPSALQACCK 333  
OY 355 RFNMFKNSDNPMTPEKVTCPAELTTRSGCERK 387  
DB 334 RFNMFKNSDNPMTPEKVTCPAELTTRSGCERK 366

RESULT 8  
AAO15053  
ID AAO15053 standard; Protein: 366 AA.  
XX  
AC AAO15053;  
XX  
DT 22-AUG-2002 (first entry)  
XX  
DE Rhizopus arrhizus endoglucanase-related protein 2.  
XX  
KM Zygomycetes-originated endoglucanase; cellulose binding domain;  
XX  
OS fibre processing; waste paper de-inking; paper pulp.  
XX  
OS Rhizopus arrhizus.  
XX  
PN WO200242474-A1.  
XX  
PD 30-MAY-2002.  
XX  
PF 21-NOV-2001; 2001WO-JP10188.  
XX  
PR 21-NOV-2000; 2000JP-0354296.  
XX  
PA (MEIJ ) MEIJ SEIKA KAISHA LTD.  
XX  
PI Nakane A, Baba Y, Koga J, Kubota H;

XX MPI: 2002-471729/50.  
 DR N-PSDB; AAL43245.  
 XX Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,  
 PT with effect of endoglucanase activity enhanced in processing fibers,  
 PT deinking waste paper and improving freeness of paper pulp  
 XX  
 PS Claim 5; Page 58-60; 109pp; Japanese.  
 XX  
 CC The invention comprises the amino acid and coding sequences of  
 CC zygomycetes-originated endoglucanase enzymes lacking the cellulose  
 CC binding domain. The zygomycetes-originated endoglucanase enzymes of the  
 CC invention have enhanced endoglucanase activity. The zygomycetes-  
 CC originated endoglucanase enzymes of the invention are useful for  
 CC processing fibres, de-inking waste paper and improving the freeness of  
 CC paper pulp - which is particularly applicable in detergent compositions.  
 CC The present amino acid sequence represents an endoglucanase-related  
 CC protein of the invention.  
 XX  
 SQ Sequence 366 AA:  
 Query Match 64.7%; Score 1363.5; DB 23; Length 366;  
 Best Local Similarity 62.6%; Pred. No. 7.9e-88;  
 Matches 246; Conservative 49; Mismatches 65; Indels 33; Gaps 9;  
 QY 1 MKFTVAITSIIVALLSSS-ABEASGSSVYGGCGIGWTGPTCCDASTCRAQKDNKYYS 59  
 DB 1 MKFTITTSALLALALGTEMASAKSKLYGCGGKDMNGPTCCSGSTCKVSN--YYS 58  
 QY 60 OCIPKPKSSSSSSSSSVYSGCGIGWSGPTCCSGSTCVAEGNKYYSQCL-PSHSNN 118  
 DB 59 QCLAPESNKNKSECKSLYGGCGKDMNGPTCCSGSTC--KVSNDIYSGCLAPES--- 112  
 QY 119 AGNASTKTKTSTKTTTAKATATVTTKVTYTKTTTCTTAASTSTSSAGYKYI 178  
 DB 113 --NGNKTSESNAHKTITTTAPA-----KEIT-----TTAKASNSNSGKYSIV 153  
 QY 179 SGGKSGSGSTTRRYWDCCASCSWPBKASVTPVDTCAANGISLT--DANAQSGCNGGNGFM 237  
 DB 154 SGGASGNGVTTTRRYWDCCASCSWPBKANVSPVSKCNKGVTALSDNSVQSGCNGGNSYM 213  
 QY 238 CANNOPMAVNDLALYGAFAAASIAAGNEAGWCGCGEYELFTTGAASGKKMVOVNTGDL 297  
 DB 214 CNDNQPMAVNDLALYGAFAAASIAAGNEAGWCGCGEYELFTTGAASGKKMVOVNTGDL 273  
 QY 298 GSN--HFDLQWPGGCVGIFNGCAQWGAEPNDGWRGARYGVSSVSDCALPSALQAGCKW 354  
 DB 274 GSSSTGAHFDLQWPGGCVGIFNGCSKQWGAEPNDGWRGARYGVSSVSDCALPSALQAGCKW 333  
 QY 355 RFNWFKNSDNPMTYKCVTPCPAELTTRSGCERK 387  
 DB 334 RFNWFKNADNPMTYKCVTPCPAELTTRSGCERK 366  
 RESULT 9  
 ABB08061  
 ID ABB08061 standard; protein; 366 AA.  
 AC ABB08061;  
 XX  
 DT 27-AUG-2002 (first entry)  
 XX  
 DE R. oryzae CP96001 RCEII protein.  
 XX  
 KM Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;  
 KW pulp treatment; RCEII.  
 XX  
 OS Rhizopus oryzae.  
 OS  
 FH Key  
 FT Peptide 1..23 Location/Qualifiers  
 FT /note= "signal peptide"

FT Protein 24..366  
 FT /note= "mature protein"  
 XX  
 XX MO200238754-A1.  
 XX  
 PD 16-MAY-2002.  
 XX  
 PF 12-NOV-2001; 2001WO-JP09858.  
 XX  
 XX 10-NOV-2000; 2000JP-0343921.  
 XX  
 PA (MEIJU) MEIJU SEIKA KAISHA LTD.  
 PI Koga J, Nakane A, Baba Y, Kono T;  
 XX MPI: 2002-471555/50.  
 XX  
 DR Cellulase preparations containing transconjugant-originated  
 XX endoglucanase and non-ionic surfactants, useful in detergent  
 PT compositions, in treating cellulose fibers and deinking waste paper and  
 PT improving freeness of paper pulp  
 XX  
 PS Claim 3; Page 23-24; 38pp; Japanese.  
 XX  
 CC The invention relates to a cellulase preparation comprising a  
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The  
 CC endoglucanase is selected from RCEII, RCEII, MCEII, MCEII or PCEI  
 CC proteins. The preparations are useful in detergent compositions, in  
 CC treating cellulose fibers and deinking waste paper and improving the  
 CC freeness of paper pulp. The fibers treated by the preparations have  
 CC reduced feathering and improved skin-feel and appearance with colour  
 CC clarification, local change in colour and softening, and after deinking  
 CC and paper pulp treatment, there is an improvement on freeness of the  
 CC paper pulp. This treatment with the cellulase preparation can be operated  
 CC at significantly lower cost. The present sequence represents the  
 CC R. oryzae CP96001 RCEII protein.  
 XX  
 SQ Sequence 366 AA:  
 Query Match 64.7%; Score 1363.5; DB 23; Length 366;  
 Best Local Similarity 62.6%; Pred. No. 7.9e-88;  
 Matches 246; Conservative 49; Mismatches 65; Indels 33; Gaps 9;  
 QY 1 MKFTVAITSIIVALLSSS-ABEASGSSVYGGCGIGWTGPTCCDASTCRAQKDNKYYS 59  
 DB 1 MKFTITTSALLALALGTEMASAKSKLYGCGGKDMNGPTCCSGSTCKVSN--YYS 58  
 QY 60 OCIPKPKSSSSSSSSSVYSGCGIGWSGPTCCSGSTCVAEGNKYYSQCL-PSHSNN 118  
 DB 59 QCLAPESNKNKSECKSLYGGCGKDMNGPTCCSGSTC--KVSNDIYSGCLAPES--- 112  
 QY 119 AGNASTKTKTSTKTTTAKATATVTTKVTYTKTTTCTTAASTSTSSAGYKYI 178  
 DB 113 --NGNKTSESNAHKTITTTAPA-----KEIT-----TTAKASNSNSGKYSIV 153  
 QY 179 SGGKSGSGSTTRRYWDCCASCSWPBKASVTPVDTCAANGISLT--DANAQSGCNGGNGFM 237  
 DB 154 SGGASGNGVTTTRRYWDCCASCSWPBKANVSPVSKCNKGVTALSDNSVQSGCNGGNSYM 213  
 QY 238 CANNOPMAVNDLALYGAFAAASIAAGNEAGWCGCGEYELFTTGAASGKKMVOVNTGDL 297  
 DB 214 CNDNQPMAVNDLALYGAFAAASIAAGNEAGWCGCGEYELFTTGAASGKKMVOVNTGDL 273  
 QY 298 GSN--HFDLQWPGGCVGIFNGCAQWGAEPNDGWRGARYGVSSVSDCALPSALQAGCKW 354  
 DB 274 GSSSTGAHFDLQWPGGCVGIFNGCSKQWGAEPNDGWRGARYGVSSVSDCALPSALQAGCKW 333  
 QY 355 RFNWFKNSDNPMTYKCVTPCPAELTTRSGCERK 387  
 DB 334 RFNWFKNADNPMTYKCVTPCPAELTTRSGCERK 366  
 RESULT 10



AAB09821  
ID AAB09821 standard; Protein; 338 AA.  
XX  
AC AAB09821;  
XX  
DT 25-SEP-2000 (first entry)  
XX  
DE Endoglucanase protéin sequence 1.  
XX  
KM Endoglucanase; cellulose breakdown; produce pulp; papermaking;  
KW animal foodstuff.  
XX  
OS Rhizopus oryzae.  
XX  
PN WO200024879-A1.  
XX  
PD 04-MAY-2000.  
XX  
PF 25-OCT-1999; 99WO-JP05884.  
XX  
PR 23-OCT-1998; 98JP-0302387.  
XX  
PA (MEIJ ) MEIJ SEIKA KAISHA LTD.  
XX  
PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida H, Nishimura T;  
PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;  
XX  
DR WPI; 2000-365117/31.  
XX  
DR N-PSDB; AAL62726.  
XX  
PT Endoglucanases of fungal origin with high activity under alkaline  
PT conditions for production of paper pulp and animal feedstuffs -  
XX  
PS Claim 44; Page 106-108; 180pp; Japanese.  
XX  
CC This sequence represents an endoglucanase protein. The invention relates  
CC to an endoglucanase of fungal origin which can completely break down  
CC purified cellulose at a concentration of less than 1mg protein/litre,  
CC and produces more than 50% breakdown of cellulose at pH 8.5. The  
CC invention includes endoglucanase protein sequences (see  
CC AAB09825-809830), endoglucanase nucleotide sequences (see  
CC AAB62726-A62732) and primers (AAB62733-A62802) which are used in the  
CC identification of the endoglucanase sequences, and in the construction of  
CC vectors containing the polynucleotides. The endoglucanase enzymes are  
CC used for the production of pulp for papermaking and for the production of  
CC animal foodstuffs.  
CC  
XX  
SQ Sequence 338 AA;  
Query Match 58.0%; Score 1222.5; DB 21; Length 338;  
Best Local Similarity 57.1%; Pred. No. 5.6e-78;  
Matches 226; Conservative 40; Mismatches 63; Indels 67; Gaps 6;  
QY 1 MKFTVAITSIALVALSSS-AEASCSVYQCGGIGWGPCCDAGSTCAQKDNKYY 59  
DB 1 MKFTTIASSALLALALGTEMSAAECSTLYGCGGKMNNGPTCCBSGSTCYVSN 55  
QY 60 QCIPKPKSSSSSSSSSVYSCGIGWGPCCBSGSTCVAQENKYYSCCLPGSHSNA 119  
DB 56 -----YSSQCLPGSSSGNK 69  
QY 120 GNASTKTKSTKSTTTAKATATVTTKTTTSTTAAST-----STSSSAGY 175  
DB 70 SSESNAHKTTTAAHKKT-----TTAAHKTTTAPAKKTTTAAKASTPSSSSSSSGKY 122  
QY 176 KVISGKSGSGSTRYMDCKKASCSWPKASVTGPDTCASNGISL-DANAQSGCNGN 234  
DB 123 SAVGSGASGNGVTRRYMDCKKASCSWPKASVTGPDTCASNGISL-DANAQSGCNGN 182  
QY 235 GFNCNNOPAVAVNDELAVGFAAASLAGSNEAGMCCGCELTFTSGAASGKKVAVVNTG 294  
DB 183 SYMCDNDQPMVAVNDLAVGFAAASLAGSNEAGMCCGCELTFTSTVAGKKVAVVNTG 242

QY 295 GDLGSN---HFDLQMPGCGVGFNGCAQWGPNDGNGARYGVSVSDCLPSALQAG 351  
DB 243 GDLGSSTGAHFDLQMPGCGVGFNGCAQWGPNDGNGARYGVSVSDCLPSALQAG 302  
QY 352 CKWRFNMFKNSDNPTMTFKEVTCFABLTTSGCERK 387  
DB 303 CKWRFNMFKNADNPMTYKEVTCFKEITAKTGCGRK 338  
RESULT 11  
AAO15052  
ID AAO15052 standard; Protein; 338 AA.  
XX  
AC AAO15052;  
XX  
DT 22-AUG-2002 (first entry)  
XX  
DE Rhizopus arrhizus endoglucanase-related protein 1.  
XX  
KM Zygomycetes-originated endoglucanase; cellulose binding domain;  
KW fibre processing; waste paper de-inking; paper pulp.  
XX  
OS Rhizopus arrhizus.  
XX  
PN WO200242474-A1.  
XX  
PD 30-MAY-2002.  
XX  
PF 21-NOV-2001; 2001WO-JP10188.  
XX  
PR 21-NOV-2000; 2000JP-0354296.  
XX  
PA (MEIJ ) MEIJ SEIKA KAISHA LTD.  
XX  
PI Nakane A, Baba Y, Koga J, Kubota H;  
XX  
DR WPI; 2002-471729/50.  
XX  
DR N-PSDB; AAL43244, AAL43250.  
XX  
PT Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,  
PT with effect of endoglucanase activity enhanced in processing fibers,  
PT deinking waste paper and improving freeness of paper pulp -  
XX  
PS Claim 5; Page 54-55; 109pp; Japanese.  
XX  
CC The invention comprises the amino acid and coding sequences of  
CC zygomycetes-originated endoglucanase enzymes lacking the cellulose  
CC binding domain. The zygomycetes-originated endoglucanase enzymes of the  
CC invention have enhanced endoglucanase activity. The zygomycetes-  
CC originated endoglucanase enzymes of the invention are useful for  
CC processing fibres, de-inking waste paper and improving the freeness of  
CC paper pulp - which is particularly applicable in detergent compositions.  
CC The present amino acid sequence represents an endoglucanase-related  
CC protein of the invention.  
XX  
SQ Sequence 338 AA;  
Query Match 58.0%; Score 1222.5; DB 23; Length 338;  
Best Local Similarity 57.1%; Pred. No. 5.6e-78;  
Matches 226; Conservative 40; Mismatches 63; Indels 67; Gaps 6;  
QY 1 MKFTVAITSIALVALSSS-AEASCSVYQCGGIGWGPCCDAGSTCAQKDNKYY 59  
DB 1 MKFTTIASSALLALALGTEMSAAECSTLYGCGGKMNNGPTCCBSGSTCYVSN 55  
QY 60 QCIPKPKSSSSSSSSSVYSCGIGWGPCCBSGSTCVAQENKYYSCCLPGSHSNA 119  
DB 56 -----YSSQCLPGSSSGNK 69  
QY 120 GNASTKTKSTKSTTTAKATATVTTKTTTSTTAAST-----STSSSAGY 175  
DB 70 SSESNAHKTTTAAHKKT-----TTAAHKTTTAPAKKTTTAAKASTPSSSSSSSGKY 122

QY 176 KVISGKSGSGSTTRVMDCKKASGMPKASVTPVDTCASNGISLL-DANAQSGCNGN 234  
 DB 123 SAVSGASGNGVTTTRVMDCKKASGMPKASVTPVKSCKDGVTLSDSNAQSGCNGN 182  
 QY 235 GFWCANNQPMWAVNDELAVGFAPAAAGIAGSNAGCCGCELTFTSGAAGKRMVQVNTG 294  
 DB 183 SYMCNDNQPMWAVNDELAVGFAPAAAGIAGSGESRMCCSCFELTFTSTSVAGKRMVQVNTG 242  
 QY 295 GDLGSR--HFDLQMPGGGVCIFNGCAQMGAPNDGMRGARGVSSVSDCASLPSALQAG 351  
 DB 243 GDLGSR--HFDLQMPGGGVCIFNGCAQMGAPNDGMRGARGVSSVSDCASLPSALQAG 302  
 QY 352 CKRFRFMFKNSDNPMTFKEVTCPAELTTRSGCERK 387  
 DB 303 CKRFRFMFKNSDNPMTFKEVTCPAELTTRSGCERK 338  
 RESULT 12  
 ABB08060  
 ID ABB08060 standard; protein; 338 AA.  
 AC ABB08060;  
 XX 27-AUG-2002 (first entry)  
 DT  
 DE R. oryzae CP96001 RCEI protein.  
 XX  
 KM Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;  
 OS pulp treatment; RCEI.  
 XX  
 OS Rhizopus oryzae.  
 FH  
 FT Key Location/Qualifiers  
 FT Peptide 1..23  
 FT /note= "signal peptide"  
 FT Protein 24..338  
 FT /note= "mature protein"  
 XX  
 PN WO200238754-A1.  
 DB 16-MAY-2002.  
 XX  
 PF 12-NOV-2001; 2001WO-JP09858.  
 XX  
 PR 10-NOV-2000; 2000JP-0343921.  
 XX  
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.  
 XX  
 PI Koga J, Nakane A, Baba Y, Kono T;  
 XX WPI; 2002-471555/50.  
 DR  
 XX  
 PT Cellulase preparations containing transconjugant-originated  
 PT endoglucanase and non-ionic surfactants, useful in detergent  
 FT compositions, in treating cellulose fibers and delinking waste paper and  
 PT improving freeness of paper pulp  
 XX  
 PS Claim 3; Page 21-22; 38pp; Japanese.  
 XX  
 CC The invention relates to a cellulase preparation comprising a  
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The  
 CC endoglucanase is selected from RCEI, RCEII, RCEIII, MCEI, MCEII or PCRI  
 CC proteins. The preparations are useful in detergent compositions, in  
 CC treating cellulose fibers and delinking waste paper and improving the  
 CC freeness of paper pulp. The fibers treated by the preparations have  
 CC reduced feathering and improved skin-feel and appearance with colour  
 CC clarification, local change in colour and softening, and after delinking  
 CC and paper pulp treatment, there is an improvement on freeness of the  
 CC paper pulp. This treatment with the cellulase preparation can be operated  
 CC at significantly lower cost. The present sequence represents the  
 CC R. oryzae CP96001 RCEI protein.  
 XX  
 SO Sequence 338 AA;

Query Match 58.0%; Score 1222.5; DB 23; Length 338;  
 Best Local Similarity 57.1%; Pred. No. 5,6e-78;  
 Matches 226; Conservative 40; Mismatches 63; Indels 67; Gaps 6;  
 QY 1 MKFTVAITSIAVALALSSS-AEASCSYVGGCGIGMTPTCCDAGSTCKAKDNKRYSS 59  
 DB 1 MKFTVAITSIAVALALALGTEMASAECSKLYGCGGKNNMGPTCCBSGSTCKVSNDD 55  
 QY 60 QCIPEKXSSSSSSCSYVGGCGIGMTPTCCBSGSTCVAEGNKYYSOCLPSSHNNNA 119  
 DB 56 -----YSQCLPSSSGSKNK 69  
 QY 120 GNASSTKSTSTSTSTTTAKAATVTTTKVTKTTTSTTTSTAASL-----STSSAGY 175  
 DB 70 SSESAAHKTTTAAHKET-----TTAAHKTTTAAKTTTVAAKSTPSNSSSSSGKY 122  
 QY 176 KVISGKSGSGSTTRVMDCKKASGMPKASVTPVDTCASNGISLL-DANAQSGCNGN 234  
 DB 123 SAVSGASGNGVTTTRVMDCKKASGMPKASVTPVKSCKDGVTLSDSNAQSGCNGN 182  
 QY 235 GFWCANNQPMWAVNDELAVGFAPAAAGIAGSNAGCCGCELTFTSGAAGKRMVQVNTG 294  
 DB 183 SYMCNDNQPMWAVNDELAVGFAPAAAGIAGSGESRMCCSCFELTFTSTSVAGKRMVQVNTG 242  
 QY 295 GDLGSR--HFDLQMPGGGVCIFNGCAQMGAPNDGMRGARGVSSVSDCASLPSALQAG 351  
 DB 243 GDLGSR--HFDLQMPGGGVCIFNGCAQMGAPNDGMRGARGVSSVSDCASLPSALQAG 302  
 QY 352 CKRFRFMFKNSDNPMTFKEVTCPAELTTRSGCERK 387  
 DB 303 CKRFRFMFKNSDNPMTFKEVTCPAELTTRSGCERK 338  
 RESULT 13  
 AAB09823  
 ID AAB09823 standard; Protein; 360 AA.  
 AC AAB09823;  
 XX 25-SEP-2000 (first entry)  
 DT  
 DE Endoglucanase protein sequence 3.  
 XX  
 KM Endoglucanase; cellulose breakdown; produce pulp; papermaking;  
 OS animal feedstuff.  
 XX  
 OS Rhizopus oryzae.  
 FH  
 FT Key Location/Qualifiers  
 FT Peptide 1..23  
 FT /note= "signal peptide"  
 FT Protein 24..338  
 FT /note= "mature protein"  
 XX  
 PN WO200024879-A1.  
 DB 04-MAY-2000.  
 XX  
 PF 25-OCT-1999; 99WO-JP05884.  
 XX  
 PR 23-OCT-1998; 98JP-0302387.  
 XX  
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.  
 XX  
 PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;  
 XX Muraeshima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;  
 XX WPI; 2000-365117/31.  
 DR N-PSDB; AAB2728.  
 XX  
 PT Endoglucanases of fungal origin with high activity under alkaline  
 PT conditions for production of paper pulp and animal feedstuffs  
 XX  
 PS Claim 44; Page 115-117; 180pp; Japanese.  
 XX  
 CC This sequence represents an endoglucanase protein. The invention relates  
 CC to an endoglucanase of fungal origin which can completely break down  
 CC purified cellulose at a concentration of less than 1mg protein/litre,

| Query Match   | Best Local Similarity   | Score   | DB  | Length |
|---|---|---------|-----|--------|
| Matches 221; Conservative 47; Mismatches 86; Indels 39; Gaps 6;   | 56.8%;  | 1195.5; | 23; | 360;   |
| 1 MKFTVATLSIAVVALALSS--AEAASCSVYQCGGIGMTGPTCCDAGSTCAKQDKNRKYS 59  | 1 MKFTVATLSIAVVALALSS--AEAASCSVYQCGGIGMTGPTCCDAGSTCAKQDKNRKYS 59  |         |     |        |
| 1 MKFTVATLSIAVVALALSS--AEAASCSVYQCGGIGMTGPTCCDAGSTCAKQDKNRKYS 59  | 1 MKFTVATLSIAVVALALSS--AEAASCSVYQCGGIGMTGPTCCDAGSTCAKQDKNRKYS 59  |         |     |        |
| 60 QCIDPKKSGSSSSSSSSSVYQCGGIGMTGPTCCDAGSTCAKQDKNRKYS 119          | 60 QCIDPKKSGSSSSSSSVYQCGGIGMTGPTCCDAGSTCAKQDKNRKYS 119            |         |     |        |
| 61 QCVENBULSTNKS SHT-----TTTSAKTTTTKSK----- 94                    | 61 QCVENBULSTNKS SHT-----TTTSAKTTTTKSK----- 94                    |         |     |        |
| 120 GNASSTYKTSKTS--TTTAKATATVTTKTVYTKTTTKTTKTSSTTAASTSSSAGYKV 177 | 120 GNASSTYKTSKTS--TTTAKATATVTTKTVYTKTTTKTTKTSSTTAASTSSSAGYKV 177 |         |     |        |
| 95 -----KTTTTEASKTTTTEASKTTTTEASKTTT-----TTTAKASTTSSSSSASTNYS 147 | 95 -----KTTTTEASKTTTTEASKTTTTEASKTTT-----TTTAKASTTSSSSSASTNYS 147 |         |     |        |
| 178 ISGKSGSGSTRYWDCCKASCMPKASVYGPVDTCAINSILIDNAOSGCGNGNFM 237     | 178 ISGKSGSGSTRYWDCCKASCMPKASVYGPVDTCAINSILIDNAOSGCGNGNFM 237     |         |     |        |
| 148 VSGASNGGETTRWDCCKPCSCMPGKADVTSVPSCNCKDKTLDANNONGCVGSSYT 207   | 148 VSGASNGGETTRWDCCKPCSCMPGKADVTSVPSCNCKDKTLDANNONGCVGSSYT 207   |         |     |        |
| 238 CANNOPAVNDELAYGFALASIASINEAGCCGVEYLTFTSGAASGKKMVOVNTGDL 297   | 238 CANNOPAVNDELAYGFALASIASINEAGCCGVEYLTFTSGAASGKKMVOVNTGDL 297   |         |     |        |
| 208 CNDQNPWVSDLLAYGFALASIASINEAGCCGVEYLTFTSGAASGKKMVOVNTGDL 267   | 208 CNDQNPWVSDLLAYGFALASIASINEAGCCGVEYLTFTSGAASGKKMVOVNTGDL 267   |         |     |        |
| 298 GSN--HFDLMPGGVGIFNGCAAOAGPNDGKARYGVSVSDCASLPALQAGCKW 354      | 298 GSN--HFDLMPGGVGIFNGCAAOAGPNDGKARYGVSVSDCASLPALQAGCKW 354      |         |     |        |
| 268 GSNAGHFDLMPGGVGIFNGCAAOAGPNDGKARYGVSVSDCASLPALQAGCKW 327      | 268 GSNAGHFDLMPGGVGIFNGCAAOAGPNDGKARYGVSVSDCASLPALQAGCKW 327      |         |     |        |
| 355 RFNMFKNSDNPMTTFKVEYTCFAELTTSGCCRRK 387                        | 355 RFNMFKNSDNPMTTFKVEYTCFAELTTSGCCRRK 387                        |         |     |        |
| 328 RFNMFKNSDNPMTTFKVEYTCFAELTTSGCCRRK 360                        | 328 RFNMFKNSDNPMTTFKVEYTCFAELTTSGCCRRK 360                        |         |     |        |

Wed Jun 18 17:56:17 2003

us-09-807-933b-9.rag

**Page 10**

PN W0200238754-A1

PD 16-MAY-2002

PF 12-NOV-2001; 2001WO-JP09858.

PR 10-NOV-2000; 2000JP-0343921.

PA (MEIJ ) MEIJI SEIKA KAISHA LTD.  
VV

PI Koga J, Nakane A, Baba Y, Kono T,  
YV

DR WPI; 2002-471555/50.

PT Cellulase preparations containing transconjugant-origated  
PT endoglucanase and non-ionic surfactants, useful in detergent  
PT compositions, in treating cellulose fibers and delinking waste paper and  
PT improving freeness of paper pulp -

PS Claim 3; Page 25-27; 38pp; Japanese.  
xy

The invention relates to a cellulase preparation comprising a transconjugant-originated endoglucanase and a non-ionic surfactant. The endoglucanase is selected from RCEI, RCEII, RCEIII, MCEI, MCEII or PCEI proteins. The preparations are useful in detergent compositions, in treating cellulose fibers and deinking waste paper and improving the freeness of paper pulp. The fibers treated by the preparations have reduced feathering and improved skin-feel and appearance with colour clarification, local change in colour and softening, and after deinking CC and paper pulp treatment, there is an improvement on freeness of the CC paper pulp. This treatment with the cellulase preparation can be operated at significantly lower cost. The present sequence represents the CC R. oryzae CP96001 RCEIII protein.

**SQ**      **Sequence**      **360 AA;**

| Query Match | Score  | DB | Length |
|-------------|--------|----|--------|
| 56.8%       | 1195.5 | 23 | 360    |

Matches 221; Conservative 47; Mismatches 86; Indels 39; Gaps 6;

QY 1 MKFTVAITSI AVALATSSS - AEASCS SVGGCGIGWTGPTCCDAGSTCKAQKDNKYY S 59

Db 1 MKFLTIASSAILALAVGTEMAHAAECSKAYYQCGGNWDGPTCCESGSTCVDYPDPNPFYS 600

60 QCI PKPGSSSSSCSSVYSQCGIGWSGPTCCESGSTCVAQEGNKYYSQCLPGSHSNNNA 113

Db 61 QCVPNENLTSTNKS SHT-----TTTESAKKTTT YKGSK----- 9

QY 120 GNASSTKKTSTKTS--TTAKATATVTTKTITTKTSTTAAASTSTSSSAGYKV 177

Db 95 -----KTTTTEASKKTTTTEASKKT7-TTTKASTSTSSSSSSASTNYS 147

178 ISGGKSGSGSTTRYWDCCCKASCSMPGKASVTGPVDTCASNGISLLDANAOSGCNGNGFM 237

Db 148 VSGGASGNGETTRYMDCCCKPSCSMFGKADVTSPVGSCKNDGKTLADNNTQNGCVGSSYT 207

238 C N N N O P M A V N D E L A Y G F A A S I A G S N E A G M C C G C Y E L T F T S G A A S G K M V Q T I N T G D L 29

Db 208 CNDNQPMVVSDDLAYGFAAASISGSEATWCCACFELTFTSTAVKGGKMWQVTINTGSDL 267

298 GSN---HFBLQMPGGVGIFNGCAQWGAIPNDGNGARYGVSSVSDCASLPALQAGCKW 354

Db 268 GSNTGAHF~~DLQ~~MPGGVGIYNGCATQWGAFTDGGWARYGGVSSASD~~CSNL~~PSALQAGCKW 327

355 RENNENSDNPTMTFKEVTCPAELTTRSGCERK 387

Dd 328 RFGWFKNADNPMTYKQVTCPKAITAKSGCSRK 360

Search completed: June 18, 2003, 15:30:59  
Job time : 43.4159 secs